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## ABSTRACT

This paper outlines 22 principles of practice that serve as criteria by which to judge the developmental appropriateness of an early childhood curriculum. The principles lead to the assertion that young children as learners are greatly supported when a "project approach" is used--e.g., when their early childhood education experience includes opportunities for investigations of phenomena in their environments. Criteria of appropriateness of curricula and pedagogy are discussed, along with explanations of the developmental approach to curricula and teaching practices. The 22 principles of a project or developmental approach include: (1) taking into account those aspects of learning that change with the age and experience of the learner; (2) taking into account two equally important dimensions of development--normative and dynamic; and (3) children's dispositions to be interested, engaged, absorbed, and involved in intellectual effort are strengthened when they have ample opportunity to work on a topic or investigations over a period of time. (BGC)

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## Children as Learners: A developmental approach

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## **Children as Learners: A developmental approach**

A curriculum can be broadly defined as a plan for learning. For any age group the plan, or curriculum, is based explicitly and implicitly on assumptions about:

- what is worth learning,
- how it is best learned, and
- when it is best learned.

The question of what should be learned addresses the broad aims, general goals and specific objectives the curriculum is expected to achieve. How something is best learned depends both on its nature and at what point in the course of learners' development and accumulated experience it is to be learned. The purpose of this presentation is to outline some principles of practice worthy of consideration in designing curriculum for early childhood education when the nature of development and learning are taken into account. As you will see, the principles outlined below lead to the assertion that young children as learners are greatly supported when their experience in early childhood programs includes opportunity to be engaged in extended investigations of worthwhile phenomena in their own environments that are worthy of their energy and attention, and approach we are now calling "the project approach."

### **Criteria of appropriateness of curricula and pedagogy**

There are many possible criteria by which to judge the appropriateness of a curriculum and of pedagogical practices for a group of young children. Among them, for example, are concepts and principles based on the body of knowledge of the psychology of learning. The latter might include considerations of such theories as social learning theory, behaviorist theory, constructivism, and so forth. Another criterion might be what we generally call culture--particularly the norms and values of the culture into which the children are born, and the culture--or we might say cultures--in which they are expected to participate when they are grown. Other possible criteria might be the political, religious, and the spiritual tenets of those the program is to serve, as well as of those official bodies which provide the program. A more specific criterion, probably a sub-category of the psychological criterion and one often cited by teachers, is the extent to which the children are "happy" in the program. A developmental approach to curriculum and teaching practices, however, is one that takes into account knowledge of development and principles derived therefrom--no doubt embedded also in the culture that produced them--as they apply to decisions about curriculum content, teaching methods, and the developmental progression of the learners. For those of us responsible for providing programs for young children, whether for half day or the long day of child care provisions, a major criterion for assessing the appropriateness of practices is what we know and assume about the nature of development, and the relationships between early experience and mature functioning.

It should be noted, however, that what may be judged appropriate by one of the criteria mentioned above may not be so judged by another. It may, for example, be culturally appropriate to expose young children to their heritage so that they appreciate and feel pride when significant adults make allusions to ancestors, historical events and heroes. But on developmental criteria, these phenomena may be too remote and abstract for meaningful understanding in young children. Indeed, it may be helpful to distinguish between helping children acquire knowledge of their heritage versus deepening their knowledge and appreciation of the actual culture in which they are growing. The latter helps them with their own first-hand experience; the former helps them acquire knowledge and appreciation of and identification with events, ideas, and persons of their culture's past.

One example of conflicting criteria was reported to me by a kindergarten teacher working with children on a project about the post office in the course of which she suggested that it might be a good idea to write a letter to someone. When she asked the children to nominate someone to write to, one child suggested George Washington. When she explained that this was not possible because he was no longer alive, the child responded indignantly, saying "You mean we had a birthday party for him and he's dead?" Thus, while it may be culturally appropriate to introduce young American children to legends about George Washington, the topic may be developmentally inappropriate. Most teachers have similar experiences of young children's literal constructions of the legends of their cultural heritage, and confusions they produce.

The aim of this paper is to present a brief outline of how understandings of the nature of development might be used to generate basic principles of practice which can serve as criteria by which to judge the appropriateness of an early childhood curriculum. However, in terms of the theme of this conference, I take it as axiomatic that all children are born learners.

Parenthetically, I am often puzzled by the expression that "children need to learn how to learn." There is something circular about this statement. How can they learn how to learn if they haven't learned how to learn? Certainly all of us can benefit from learning strategies that might make us more efficient or effective learners. But I find it more useful to assume that the capacity to learn is in-born in all children everywhere--perhaps more efficiently and strongly in some children than others. Furthermore, I find it useful to assume that children are always learning, equally so if what they are learning is that their world is interesting or frightening, friendly or hostile, and so forth.

### **Principles of a Developmental Approach to Early Childhood Education**

#### **Principle No 1**

**A developmental approach to education is one that takes into account those aspects of learning that change with the age and experience of the learner.**

A developmentally appropriate curriculum is one that is designed on the assumption that what children should learn, and the means by which they are

most likely to learn it, change with their age and the experience that accrues with age. In other words, in a developmental approach to curriculum design and teaching methods, answers to questions about what should be learned and how it would best be learned depend on what we know of the learner's developmental status and our understanding of the relationships between early experience and subsequent development.

As already suggested above, developmental criteria must be considered in the context of a variety of other criteria by which the appropriateness of a curriculum can be assessed. The nature of development is only one possible criterion by which to judge the appropriateness of a curriculum or of teaching methods. For example, when we apply psychological rather than developmental criteria, we can see that some curriculum and teaching practices are always appropriate, regardless of the age and experience of the learner (e.g. to be respectful of the child, of his/her family, background, etc.). Similarly, some practices are never appropriate, no matter the age the learner, (e.g. the use of time-out procedures for punishment). Since these criteria do not change with age they are psychological and ethical--perhaps moral, philosophical or political, rather than developmental considerations.

#### **Principle No 2.**

**A developmental approach takes into account two equally important dimensions of development: the normative and the dynamic dimensions.**

There are at least two equally important dimensions of development to consider: the normative and dynamic dimensions, as follows:

- (a) The normative dimension of development addresses the characteristics and capabilities of children that are typical or normal for their age group (e.g. the typical size of vocabulary of four-year-olds, the average age of first walking, of understanding numerical concepts, etc.).

Age norms provide useful starting points for curriculum planning. Knowledge of age-typical interests, activities and abilities can provide a basis for preliminary planning of a program of activities, and the selection of equipment, and materials. For example, the norms of development provide a basis for assuming that most--but not all--two-year-olds need daytime naps, most four-year-olds understand calendar concepts very poorly, or that typically, most five-year-olds can begin to write their own names, etc.

Age norms are also useful for alerting teachers to individual children whose patterns of development depart noticeably from their age group and who warrant the kind of close observation necessary to ascertain whether special curriculum and teaching strategies are required.

- (b) The dynamic dimension of development deals with an individual child's progress from immaturity to maturity. This dimension addresses changes over time within an individual and the long term effects of early

experience rather than the normality or typicality of behavior and abilities of a particular age group. This dimension has three aspects:

- i) sequence refers to the order or stages of development through which an individual passes, e.g. in achieving mastery of first language.

Under this heading, the curriculum and teaching practices consider what learning and developmental tasks have to be completed before the next learning is most likely to occur. For example, it is reasonable to assume that starting to learn a second language is most likely to be beneficial following mastery of one's first language.

- ii) delayed effects refer to the potential positive and negative effects of early experience that are not manifested at the time of occurrence, but may influence later functioning (e.g., early infant-caregiver attachment may influence later parenting competence, contentiously discussed among developmental psychologists for many years).

This aspect of the dynamic dimension of development takes up issues concerning which practices that are effective in the short term may have delayed or 'sleepers' effects that are deleterious in the long term (e.g. rewards and punishments, insecure early attachment of the infant to its caregiver, etc.). Similarly, some practices that may not seem important to development during the early years may have positive delayed effects later. Whether positive or negative, 'delayed effects' are those effects that are not manifested until later in the course of development.

- iii) cumulative effects refer to experiences that may have no effects (either positive or negative) if they occur occasionally or rarely, but may have powerful effects if they occur frequently (e.g., the cumulative positive effects of frequent block play or cumulative negative effects of frequent—even if mild—criticism).

### **Principle No 3.**

**A developmental approach to curriculum and teaching practices takes into account both dimensions of development in that what young children should do and should learn is determined on the basis of what is best for their development in the long term (i.e. the dynamic consequences of early experience) rather than simply what "works" in the short term.**

Taken together, the two dimensions of development suggest that just because children can do something (the normative dimension), does not mean that they should do it. Young children can be coerced into learning and engaging in many activities that may not necessarily be in their best interests in the long term

(dynamic dimension), but that may seem acceptable, insignificant, or harmless in the short term.

**Principle No 4.**

**A developmental approach to curriculum and teaching takes into account four categories of learning goals:**

- **knowledge**
- **skills**
- **dispositions, and**
- **feelings, and assumes all four categories of learning goals should be addressed and assessed.**

These are briefly defined as follows: Knowledge consists of understandings, constructions, concepts, information, facts, stories, songs, legends, and the like. Skills are defined here as relatively small units of action that can be easily observed and inferred from behavior, including physical, social, verbal skills of various levels of specificity. Dispositions are habits of mind--not mindless habits--with motivational and affective qualities that propel the manifestation of relevant behavior, e.g. curiosity, cooperativeness, quarrelsomeness, etc (See Katz, 1995 for a fuller discussion of the problems of defining dispositions). Feelings are internal emotional states associated with most contexts and interactions. (See Katz [1995].

The nature of knowledge has occupied professional epistemologists for hundreds of years, and is difficult to define. I note with some apprehension that current literature on constructivism claims that "children construct their own knowledge," (e. g. Kamii and Ewing, 1996) when the real challenge to adults is helping children with their misconstructions! In some sense it seems reasonable to assume that all of us assimilate and accommodate "knowledge" in our own minds--make up our own minds, as it were. Nevertheless, when children master such arbitrary "knowledge" as the alphabet or the calendar, it is somewhat misleading, if not confusing, to claim that they have "constructed" it by themselves. It would seem to me to be more useful to claim that children construct their own understandings--let's say, of their experience (which includes instruction), and then develop curricula and teaching strategies on that assumption, as discussed below.

I have listed "knowledge as the first of the four learning goals because educational programs (short or long day) and institutions are uniquely charged by their communities with planning ways to help children acquire worthwhile knowledge and skills. Of course, both knowledge and skills are also learned in many other contexts outside of educational or early childhood settings. The latter, however, are charged by their communities with helping the young acquire knowledge and skills they judge worthwhile and essential to participate effectively in the community. No matter what curriculum, activities and teaching strategies are adopted by which to accomplish these two learning goals, learners' dispositions and feelings are likely to be influenced by them, whether intentionally or by default.

It seems appropriate during the early years to be especially intentional and deliberate about strengthening worthwhile dispositions (e.g. the disposition to learn, to form friendships, to be open, to hypothesize, conjecture, etc.) and engendering positive feelings, (e.g. feelings of belonging, of competence, self-confidence, etc.). Explicit attention to strengthening worthwhile dispositions in the early years is recommended partly because undesirable ones may become more resistant to change with increasing age, and desirable ones, typically present at birth (e. g. the disposition to learn, to be curious, to become attached to caretakers) may be seriously weakened and even lost, and become very difficult to re-instate or implant with increasing age.

In the light of current discussion in Australia about the nature of work in short-versus long-day provisions for young children, I would like to suggest that while the longer day incorporates greater attention to the non-instructive or educational aspects of early childhood provisions, one cannot just "care" for or about children in an abstract or passive sense: something significant must be going on between the adults and children that is of interest and concern to both. One does not just sit near a child and say--as it were--I am "caring" for you and about you! Events and activities that are appropriate, engaging, meaningful and worthwhile must be planned, or must emerge as a consequence of being together. The question of what those events and activities should be is precisely what requires specialized knowledge and training, and the professional status that comes with such expert knowledge and training.

#### **Principle No 5.**

**The younger the learners, the more important is the goal to strengthen their disposition to look more closely at phenomena and events in their own environments worth learning more about.**

This principle addresses the content of the curriculum of which a major goal is to strengthen children's inborn disposition to make sense of their experiences and environments. A major responsibility of teachers of young children is to alert them to phenomena and events in their own environments and experiences worthy of their attention and deeper understanding. As children grow older and gain a firm grasp of their own experience and environment, it is the responsibility of educators to strengthen children's dispositions to make sense of other people's experiences and environments - those that are distant in both time and place.

#### **Principle No 6.**

**The younger the learners, the more important it is that what they are learning about (knowledge), and what they are learning to do (skills), have horizontal rather than vertical relevance.**

Horizontal relevance means that the knowledge and skills to be learned are meaningful and useful at the time of the learning.

Vertical relevance refers to learning (knowledge and skills) that are intended and expected to be meaningful and useful at some point in the future, and that are designed to prepare the learner for the next grade, the next school....the next life! As children grow older their capacity to benefit from knowledge and skills that have vertical rather than horizontal relevance increases.

As children grow older they are more able to understand and accept the reasons for mastering knowledge and skills that will have relevance and value for future experiences. During the early years, excessive emphasis on knowledge and skills that have vertical rather than horizontal relevance may undermine children's dispositions to learn and also their confidence in their own intellectual powers.

Many teachers complain to me that they are required to instruct children in knowledge and skills they believe them to be unready for. However, they say that if they fail to do so, the teacher of the next grade will complain. I have come to think of this kind of pressure to prepare for the next grade as a kind of "pedagogical paranoia"! An example of this phenomenon was given to me recently by a teacher of a mixed-age group of seven and eight year-olds. She reported that she had become quite impatient with one of her pupils about his difficulty with a maths problem and said to him "I know you knew this last year because I was your teacher last year! Now what happened?" She went on to explain to me that if she had not been the child's teacher the preceding year, she would have thought ill of the previous year's teacher!

#### **Principle No 7**

**When young children are introduced to formal instruction too early, too intensely and too abstractly, they may learn the knowledge and skills offered, but they may do so at the expense of the disposition to use them.**

For example, premature instruction in reading or arithmetic (especially through rote learning) may succeed in equipping children with the intended skills and knowledge at a rudimentary level; however, the processes of learning through such instruction may damage their dispositions to become readers and users of the numeracy skills and concepts so painfully acquired.

The potential risk of premature formal instruction can be thought of as the damaged disposition hypothesis that may account for the common observation that children's natural dispositions to learn, explore and investigate subside (and often disappear) after a few years of schooling (See Donaldson, 1982). This phenomenon is sometimes referred to as the second grade "wash-out" phenomenon. The potential damage may not show early. Most children during the early years are eager to please teachers and engage willingly in the activities provided for them. The damage is likely to be manifested as a cumulative effect of several years of excessive drill and practice of decontextualized skills that rely heavily on practice of small bits of information and skills and rote memory. Thus consideration is merited in curriculum planning of the potential the long term cumulative effects of early experience on the dispositions to apply what is learned.

**Principle No 8**

**The younger the learners, the more true it is they they learn through interactive rather than reactive and receptive experiences, through direct and first-hand experiences rather than indirect and second-hand experiences, and through active rather than passive experiences.**

As children grow older, their capacity to benefit from passive learning, from indirect and second-hand learning increases. While young children do learn from passive experiences (e.g. from stories, movies, television) the major intellectual dispositions, such as to inquire, hypothesize, explore, experiment, investigate, analyze and synthesize, etc., are strengthened in the early years through interactive experiences.

**Principle No 9**

**Learning, especially in the early years, generally proceeds from behavioral knowledge to representational (symbolic) knowledge.**

By way of example, the distinction between behavioral and representational knowledge can be seen in language development. Namely, preschoolers have the behavioral knowledge that enables them use their mother tongue long before they can represent it in the form of abstract grammatical categories such as nouns and verbs. Similarly, young children can navigate their homes and immediate neighborhoods correctly long before they can represent them in the form of maps or directional concepts such as 'right' and 'left' or 'east' and 'west.'

A developmentally appropriate curriculum is one that broadens and deepens children's behavioral knowledge by providing a wide variety of first hand experiences, and helps them represent their experiences through a wide variety of media, e.g. verbal, literary and graphic languages, models, and dramatic play. In the processes of representing their understandings, the adults can help children so that their understandings can become deeper, fuller, and more accurate, more finely differentiated and in other ways more fully developed. In this way young children can deepen and improve their understandings of what they already know (i.e., their own experience). Another way of expressing this principle is that children's understandings are constructed and re-constructed by them in the processes of representing them rather than instructed into them didactically.

**Principle No 10**

**Unless children have sufficient experience of what it feels like to understand, some topics in depth, their dispositions to seek in depth understandings cannot be developed and strengthened.**

Many curriculum and pedagogical practices in early childhood and elementary education emphasize superficial acquaintance with information and 'smatterings' of knowledge of many things, rather than the acquisition and construction of in-depth understandings of phenomena worthy of the children's time and energy. The disposition to seek in-depth understanding of complex phenomena worthy of attention is essential for competent participation in

democratic processes, one of the important ultimate goals of education in countries like ours.

#### **Principle No 11**

**The younger the learners, the more important it is that they have ample opportunity to interact with real objects and real environments.**

When young children are obliged to "acquire" or assimilate knowledge about things that are not real--or at least vivid--to them, they are likely to find it difficult to contribute ideas, hypotheses, predictions, and information, or to pose meaningful questions that can be answered through investigation, exploration, observation, discussion, and argument. When the topics introduced to young children are too remote from their own first-hand experience their dependence of the teacher for ideas, information, etc. is increased. Young children are dependent upon adults for many of the most important aspects of their lives; however, excessive and unnecessary dependence on adults in learning situations may undermine the development of their intellectual dispositions (e.g., to be curious, experimental, analytical, exploratory, investigative, thoughtful, empirical, and hypothesizers).

#### **Principle No 12**

**When young children are frequently coerced into behaving as though they understand something well, when they really do not (e. g. premature instruction in the calendar, or formal arithmetic), their confidence in their own intellects, observations, hypotheses and questions may be undermined, and in some cases may be abandoned.**

The cumulative effect on young children of repeated experience in situations in which they must act without real or confident understanding may be a weakening or distrust of their natural dispositions to construct their own understandings of their experiences.

#### **Principle No 13**

**For young children, investigation and observation are just as natural ways of learning as is play.**

Early childhood specialists and practitioners have a long tradition of asserting that play is a way of learning that is natural to young children. Experience of living and working with young children easily confirms and strengthen our appreciation of the basis of this tradition--one that may have developed at a time when children's play was not valued and when few play materials were available for young children.

Nevertheless, this tradition should not diminish acknowledgement that it is just as natural for children to learn through direct observation and investigation as it is natural to learn through play. Adults can readily see the very young observe phenomena around them "take it all in" with interest. Similarly, from infancy onward, children put enormous amounts of time and energy into investigating

their physical and social environments--often exposing themselves to danger in the process. Young children are natural anthropologists, linguists, and scientists.

Most children naturally generate explanations and hypotheses to account what they observe, whether the phenomenon in question is rain, worms, or cashiers in the supermarket. Their conjectures can be followed up with close observations, interviewing, and other fact-finding activities by which their predictions and hypotheses can be tested. In other words, a child-sensitive and appropriate curriculum is one that capitalizes on children's natural impulse to find out such things as what the objects around them are made of, how they work, where they come from, what they are used for, what they are called, what the people around them do, when and why they do what they do, and so forth. A curriculum for young children that takes into account their development is one that addresses their natural dispositions to observe and investigate their surroundings.

#### **Principle No 14**

**The goal of all education is to engage the mind of the learner in its fullest sense, including its aesthetic, moral, social, and spiritual sensibilities.**

Enjoyment is not a main goal of education; it is a main goal of entertainment. The ultimate goal of all education at every level is to engage the mind so as to strengthen the learner's disposition to go on learning. Curriculum and teaching strategies that succeed in engaging children's minds fully, provide experiences that are enjoyable; but the enjoyment is not the goal of such experiences; enjoyment and deep satisfaction are the desirable by-products or side-effects of appropriate curriculum and teaching practices. I often wonder if we sometimes under-estimate young children's capacity to find satisfaction in hard work, solving problems, overcoming obstacles in their work, and in investigating puzzling phenomena.

#### **Principle No 15**

**The younger the learners, the more important it is that they have opportunities to apply in meaningful contexts the knowledge and skills learned in the more formal parts of the curriculum.**

Good project work in which children investigate events and phenomena in their environments worth learning more about, and represent the results of their investigation, provides a meaningful context for children to apply the skills taught in the more formal parts of the curriculum (Katz and Chard, 1989). Indeed, involvement in project investigations often motivates children to seek help from teachers and others in strengthening their formal literacy and numeracy skills to use in representing their observations and findings.

#### **Principle No 16**

**Children's dispositions to be interested, engaged, absorbed, and involved in intellectual effort are strengthened when they have ample opportunity to work on a topic or investigation over extended periods of time.**

The term interest refers to the capacity to "lose oneself" in something outside of oneself, and to sustain effort at this pursuit, including throughout its routine elements. A curriculum characterized by a succession of brief one-shot activities completed in a few minutes and not resumed for further development, may weaken their dispositions to explore topics in depth, and to reach for fuller and deeper understanding.

Furthermore, children in contemporary society have little opportunity to appreciate the length of time and the amount of effort required for the most important basic elements in their lives (e.g., the provision of food and shelter). Project work in the form of extended in-depth investigations provides a context for learning about the origins of important aspects of children's environments, for appreciating the long processes involved in creating them, and for direct experience of long term effort involved in representing their findings.

#### **Principle No 17**

**When young children's interest draws them to real events, particularly those in which adults are involved, and the adults respond to this interest by providing support and information, by focusing children's attention on important aspects of the phenomenon of interest, and by inviting their participation in the activity, the children are in an optimal environment.**

Young children--especially in the toddler years--are often attracted to real events in their environment, (e.g. an adult who is cooking, repairing a household item, cleaning the furnace, building a fence, etc.). When the adult involved then responds to that interest with information, and suggestions for how the child can participate, reasons why she or he cannot participate in some parts but can in others, gives information in response to the child's questions, appreciates the elements the child shows interest in, and so forth, the child is learning as an apprentice.

Such learning can only occur if something real and intriguing to children is in progress in their presence. Such real and actual events can be part of good project work. If few real events or tasks are available in the classroom, teachers are obliged to find other ways to motivate children. When a teacher, for example, is arranging the classroom environment so that it will be hospitable to a small animal, the children can be drawn into the task and adopt the teacher's concerns and interest in it. When the teacher presents children with tasks for their benefit only, and of no real interest to the teacher (e.g. copying the letter "m" ten times on a sheet of paper), she may have to resort to high praise, coercion or cajoling to get the children involved in them. While not all tasks involved in the mastery of basic literacy and numeracy can be or need be interesting, a balance of systematic skill instruction and interesting project work is most likely to support children's dispositions to learn.

### **Principle No 18**

**Desirable dispositions are not likely to be learned from instruction, but from being around significant others who exhibit, exemplify, and model them.**

To return to the matter of dispositional goals, for dispositions to be strengthened, they must be manifested effectively, and appreciated (i.e. responded to appropriately, rather than rewarded). Desirable and undesirable dispositions are also learned from models, and are strengthened by being manifested and effective. Research indicates that excessive use of rewards, prizes, certificates, stickers, and trophies may undermine and weaken the development of intrinsic motivation, i.e., the disposition called interest. Project work provides a context in which intrinsic motivation and interest can be manifested, appreciated and thereby strengthened.

### **Principle No 19**

**Feelings are not likely to be learned through instruction; both desirable and undesirable feelings are learned in the context of and as consequences of experience.**

Feelings of confidence, self-esteem, etc., are not likely to be strengthened from instruction, exhortation, incantation, or admonition, but arise indirectly as the consequences of experiences that have other goals. Similarly, feelings of low self-esteem, anxiety, etc., are not likely to be alleviated by exhortation. Children are most likely to acquire self-esteem when adults esteem them. This means that children are treated respectfully as people--though young ones--with minds, ideas, thoughts, hypotheses, interests, and real concerns. Thus, when good project work is included in the curriculum, children have ample opportunity to make decisions, assist each other, to argue about their ideas and plans, and to take initiative and responsibility for the work that is accomplished.

### **Principle No 20**

**The younger the learners, the wider the variety of pedagogical approaches and methods must be used.**

When a single method of teaching is used with a group of children that is diverse in background, development, experience, interests, abilities, aptitudes, etc., a significant proportion of them is likely to fail. When using a single method for teaching a whole class (e.g. teaching the whole group of more than about a dozen young children, the same thing, the same way, on the same day, at the same time), the chances are that about a third of the children already know what is being taught, about a third will learn it, and the remaining third is unlikely to grasp it; in this way, whole group instruction means that two-thirds of the children may be wasting their time!

The use of a single method of teaching a whole group of children can be described as the application of a homogeneous treatment to a heterogeneous group, which inevitably must lead to heterogeneous outcomes. While we do not wish all children to become alike or homogeneous in every way, (i. e., we value some heterogeneous outcomes) there are some desirable homogeneous

outcomes. For example, we want all children to acquire minimal skills in literacy and numeracy, and achieve optimum self-confidence. If children are different from each other in significant ways (e.g. in experience, background, language, ethnicity, aptitude, ability, interests, etc.) and we want a homogeneous outcome, (i.e. all children to have the disposition to learn, competence in basic skills, etc.) we must use heterogeneous treatments.

#### **Principle No 21**

**The younger the learner, the larger the role of adults in helping them to develop social competence.**

Children who fail to achieve at least minimal social competence by about the age of six are at significant risk for school failure, later mental health difficulties, dropping out of school, and other similar problems. As children grow older the problems of overcoming social difficulties increase. Social competence can be strengthened in the context of being engaged in activities requiring social understanding and social interactive skills. Project work is one element of a curriculum that can provide a context for the manifestation of such skills.

#### **Principle No 22**

**Young children should be engaged daily in worthwhile activities and work in which their cooperation is functional and not phony.**

This means that children should be engaged frequently and regularly in group work in which each participant has opportunity to make individual contributions to the total effort. Project work provides a highly suitable context for such cooperative effort.

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